REVISION OF THE GENUS *FERGUSONINA* MALL. (DIPTERA, AGROMYZIDAE).

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(*Communicated by Dr. G. A. Currie.*)

(Sixteen Text-figures.)

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Although the genus *Fergusonina* has been erected within recent years by Malloch (1924), a revision of it has already become necessary on account of the many species brought to light by the work of Dr. G. A. Currie on the early stages of these interesting gall makers. No less than 19 species are now known to us, many of which would not have been easily detected but for the evident specific characters exhibited in the larval stages and also, in many instances, by the shape of the gall. There is no doubt that a large number of other species are awaiting discovery, since each species of *Eucalyptus* seems to have its corresponding species of *Fergusonina*, and even in some instances several of them, according to the part of the tree on which the galls are found.

As many of the newly-discovered species could not readily be distinguished from the seven known ones by means of the few characters, mainly of coloration, used by Malloch in his descriptions, a more complete study, including the genitalia of all the species, and especially of the known ones, became imperative. This revision was greatly facilitated through Mr. Malloch's kindness in making his types available to the writer; they will eventually be returned to the institutions from which he had received them for study.

The seven species described by Malloch are: *F. microcera*, genotype (♀ 1924, ♂ 1926; gall unknown), *F. atricornis* (♂ 1925; gall unknown), *F. flavicornis* (♀ 1925; gall unknown), *F. scutellata* (♂ 1925; gall unknown), *F. biseta* (♂ 1932, from galls of *E. maculata*), *F. gurneyi* (♂, ♀ 1932, from galls of *E. maculata*), *F. eucalypti* (♂, ♀ 1932, from galls of *E. maculata*).

All except the last two were described from single specimens; both sexes of *F. eucalypti* and *F. gurneyi* were obtained through breeding from a certain type of gall, but the two sexes of *F. microcera* have been collected in the field, in different localities, near Sydney. It is therefore doubtful whether they actually belong to the same species since the multiplicity of forms is so great. The flies of both sexes given as belonging to the same new species described in this paper have always been obtained from the same type of galls on the same host; it is, therefore, very likely that the correlation is correct. All errors are, however, not completely excluded by this method, since two species, such as *F. eucalypti* and *F. gurneyi*, may sometimes breed in very similar galls on the same part of the tree.

It is remarkable that none of the twelve new species bred recently from known galls can be referred to any of the seven described species, yet the localities of some of them are not so very far apart; this shows that the number of species must be very large indeed.

Genus Fergusonina.

The original diagnosis of the genus was made by Malloch (1924, p. 337) on a single female specimen, the venation of which is very probably aberrant, and the head chaetotaxy an exception among the many other species. This diagnosis was supplemented and corrected further by that author in 1925 (p. 90) and then in 1932 (p. 213), and it stands in need of further emendation and addition since the discovery of many other new species. In view of these successive modifications, it seems best here to give a full description of the generic characters as drawn from the older species and those that have come to light recently.

Head.—Face conspicuously flattened, lunula unusually developed, antennae small, separated by a strongly developed carina and inserted in deep pits at the level of the lower margin of the eyes, but quite distant from these. Antennae almost bare, a few tiny hairs and one stiff but short bristle on the 2nd segment. Arista usually incrassate at base, more or less elongated and more or less stiff, sometimes the distal part flagelliform, almost always distinctly pubescent. Proboscis small, palpi moderate. Chaetotaxy: vibrissae always well developed; parafacials, frons and vertex covered with small stiff hairs; almost always two orbitals, seldom only one, the posterior ones larger; sometimes in between them one or two short hairs, slightly larger than those of the vertex and pointing in the same direction as the true orbitals; sometimes also one of these small hairs in front of the anterior orbital, or behind the posterior one. Two pairs of verticals, the inner ones smaller, convergent, the outer ones divergent; the ocellars proclinate and parallel, the postverticals against the ocellar triangle, erect, parallel.

Thorax.—Mesonotum with numerous small stiff hairs fairly regularly distributed; almost always three, sometimes four, distinct prescutellar dorso-centrals, the anterior ones sometimes very small and difficult to detect. One pair of prescutellar acrosticals present, sometimes not much larger than the hairs of the mesonotum; often another small bristle in between the acrosticals and the last dorso-central. One or two prealar and postalar, one humeral, one post-humeral and two notopleural bristles. Mesopleurae setulose, one larger bristle on the upper margin, sometimes a second one, always smaller. Mesosternum setulose with one larger bristle on upper margin.

Legs with tiny stiff hairs; a row of postero-ventral bristles on the anterior femora; one large postero-ventral bristle on the hind femora.

Wing.—Costa apparently unbroken at base except near h, extending past the tip of R_{2+3} and sometimes reaching the tip of R_{4+5}, but in that case its fine bristles are not always present up to that point, so that the costa seems, at first sight, to go only up to a little distance beyond the tip of R_{2+3}. The two branches of Rs are usually parallel, but may also be convergent. The posterior cross-vein may be missing (as in *Phytomyza*) either completely or it may be represented by a very small stump on M. The distance between the two cross-veins is usually equal to the length of the posterior cross-vein, but it is, in a few instances, either smaller or larger.

Abdomen fairly flattened ventro-dorsally. Hypopygium of male inconspicuous, folded under the venter;* it is composed of a rounded capsule, the 9th tergite,† with which the coxites are fused and are therefore not able to move independently.

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* *F. microcera* may constitute an exception in this respect, since Malloch described the forceps as being long and protruding; I have not seen this species.

† In one species, *F. newmani*, the 8th tergite also enters in the composition of the hypopygial capsule (fig. 11B).

These coxites assume the shape of ventro-lateral, more or less developed, lobes or flaps which may or may not be divided by a deep cleft from the capsule of the 9th tergite. Sometimes these flaps, instead of being rounded, are provided with a conspicuous apical tooth (figs. 9, 15, 16), and between them and the sub-anal lobe there is at times a conspicuous, rather strongly sclerotized tooth (figs. 11, 13). The flaps are often provided on their inner face with a number of sensory setae. The dorsum of the 9th tergite carries a fair number of small stiff bristles and a pair of very long ones at the base; they are usually cruciate (figs. 11, 12, 16). The 9th tergite and its ventral flaps almost completely surround the distal end of the aedeagus or intromittent organ. The aedeagus is composed of a rather complex basal part comprising the ejaculatory apodeme which is not an independent piece as in many Acalyptratae and in *Agromyza* for instance, but it is attached by a transverse sclerotized bridge to a large shield-like piece (fig. 3A) enclosed within the abdominal cavity and which I very doubtfully consider as an apodeme of the 9th sternite; the intromittent organ is composed of a median duct, evidently the penis, and a dorsal semi-cylindrical piece apparently constituted by the longitudinal fusion of two symmetrical elongate organs (the parameres?) which form the hypophallus; near the extremity of the penis there is, on each side, an articulated, often toothed, organ which is analogous to the titillator of certain chalcid wasps. When the intromittent organ is dissected these two "titillators" remain attached to the penis; I take them to be the paraphalli. Normally they are also attached by their externo-basal corner to the hypophallus, so that when the penis slides forward on the latter the paraphalli are tipped sideways (figs. 2, 3); their function is apparently to serve as anchorage during copulation. The shape and structure of these paraphalli are peculiar to each species; they often offer a better means of identification than the ventro-lateral flaps, which do not always come out well on the preparations; but to obtain a good view of the paraphalli it is necessary to dissect the aedeagus out of the 9th tergite before mounting.

In the female the distal end of the abdomen is highly modified, even the 6th segment being involved in the formation of the ovipositor; this segment is sub-cylindrical, its tergite and sternite being fused so as to form a strongly chitinized tube without lateral suture; it carries a number of submarginal bristles arranged in one dorsal and one ventral group, in which the number of bristles and their arrangement differ according to species, or group of species. The 7th segment is fusiform, still more strongly sclerotized; it also carries a number of sub-apical bristles and, exceptionally, some more bristles on the bulb, either ventrally or dorsally.

These two segments constitute the external part of the ovipositor, but sometimes, at least after death, the 8th segment protrudes and the whole organ assumes then a much more elongate appearance (figs. 4, 5, 10). The 8th segment is normally invaginated completely within the 7th; it is membranous, but most of its surface is covered with dense triangular teeth directed backwards. The 9th segment is very long and stylet-like, gently curved, and ends in an acicular point; its musculature is attached to a very long rod-like apodeme of the 7th segment which projects a long way within the 6th segment.

Status of the genus Fergusonina.

In his first paper Malloch placed this genus in the Agromyzidae, subfamily Agromyzinae, without discussing in any way the family or subfamily status of his new genus.

If one is to follow Hendel in giving such a great importance to the breaks in the costa in the taxonomy of the Acalyptratae, *Fergusonina* could not find its place in the Agromyzidae because there is no such break in the vicinity of the tip of R_1. There is only one slight break, or trace of such, in the vicinity of h, such as is found in the Trypetidae, Milichidae, Carnidae, and a few others, but in all these families there is also a distinct break at R_1.

Fergusonina stands apart among the Agromyzidae in the absence of the lower orbital bristles; the post-vertical bristles sub-parallel, erect, not strongly divergent and pointing backwards; by the conformation of the abdomen which has only five visible segments before the genitalia in both sexes, since the 6th in the female is, in a way, a part of the ovipositor. The conformation of the male hypopygium is also quite different from that of the Agromyzidae; the female ovipositor is more akin to that of the Trypetidae, but yet not fundamentally different from that of *Phytomyza*, for instance (some species also lack the posterior cross-vein as in this genus), in which the 8th segment is also of a raspy nature; however, in *Fergusonina* the 9th segment is stylet-shaped as in the Trypetidae.

I am giving here a list of the characters of the Agromyzidae as set out by Hendel (1928) and by Hering (1927), so that one might, by comparison with the detailed description of the genus *Fergusonina* I have given above, easily appreciate how far this genus differs from the other members of the family:

(1) Costa interrupted in front of tip of Sc or R_1; (2) Sc obsolete, ending in costa or in R_1; (3) costa reaching to R_{4+5} or M_1; (4) anal and anal cell always present; (5) vibrissae and inferior orbitals always present; (6) when vibrissae absent the costa only reaches the tip of R_{4+5} and the lateralia and vertical plate are widened in front and strongly hairy; (7) posterior cross-vein present or absent; (8) several dorso-central bristles; (9) acrosticals present or absent; (10) facial carina present; (11) antennal pit reaching the epistome; (12) palpi small; (13) presutural bristles present; (14) prescutellar bristles present; (15) postvertical bristles not convergent; (16) no bristle on frontal band (interfrontalia); (17) abdomen with six visible segments before the genitalia in both sexes; the 7th segment forms the non-retractile part of the ovipositor, its tergite and sternite being fused in a single tube in which the rasp-like 8th and the soft 9th segments are withdrawn.

Many "families" have been erected in the past in the Haplostomata with less grounds than *Fergusonina* would have to be included in a family of its own; yet, as its affinities evidently point to the Agromyzidae, I propose to erect only a new subfamily within this group to receive this genus. This procedure will more readily suggest the affinities, without introducing another family in this already over-divided group.

To sum up, the new subfamily of the Fergusoninae is characterized as follows: Costa without break at tip of Sc or R_1, but with a trace of one at h, only two or even one posterior orbital bristle; antennae inserted very low on the face; lunula extremely developed; only five abdominal segments before the genitalia; 6th abdominal segment in the female forming part of the ovipositor, the 9th segment stylet-shaped.

The key to species given below will only work for the species known to me; it will have to be remodelled as further species are added to the list. It is almost completely based on coloration; this is a serious weakness, but it will allow identification of a fairly large number of species without dissection of the genitalia. However, unless the specimens studied have been bred from galls of

a known species of *Eucalyptus*, dissection of the genitalia will have to be resorted to in the end, in order to obtain an accurate identification. The grouping of the species follows the order given in the key; it is purely artificial, since it rests mostly on characters of coloration. No sound grouping could really be attempted until most of the large number of species, which await discovery, are brought to light.

At Dr. Currie's request all the new species have been named after persons who have procured him material or have otherwise helped him with his work.

The types of *F. microcera*, *atricornis*, *flavicornis* and *scutellata* are in the collection of N.S.W. Dept. of Health, Sydney; those of *F. biseta*, *gurneyi* and *eucalypti* in the collection of the Entomological Branch, Dept. of Agriculture, Sydney; and those of all the new species described in this paper in the collection of the C.S. & I.R. at Canberra.

Key to Species.

1. Antennae partly black or brownish 2
   Antennae completely yellowish 4
2. Third antennal segment black or brown, orbital bristles very small 3
   Second antennal segment blackish-brown, sometimes rather faintly; four complete dark vittae on the mesonotum and longitudinal blackish streaks on pleurae; orbital bristles well developed ..... *F. carteri*, n. sp.
3. Mesonotum shining without dark vittae or markings; parafacials wide, with two rows of setulae; wing-length 3 mm. ..... *F. eucalypti* Mall.
   Mesonotum dull, with dark markings on the side past the suture; wing-length 2·2 mm. ..... *F. atricornis* Mall.
4. Posterior cross-vein missing or represented only by a very small stump on the median vein* 5
   Posterior cross-vein complete 6
5. Genitalia as in fig. 4 ..... *F. evansi*, n. sp.
   Genitalia as in fig. 5 ..... *F. davidsoni*, n. sp.
6. Legs extensively dark or with a few small dark markings 7
   Legs completely yellow 9
7. Mesonotum black with exception of the side margins, dark markings on the femora only ..... *F. scutellata* Mall.
   Mesonotum mostly yellowish-orange or else the four dark vittae are not fused together and the area in front of the scutellum is yellow 8
8. Legs with small dark markings on the tibiae only ..... *F. brimblecombi*, n. sp.
   Legs with extensive black markings on the femora and tibiae, hypopygium blackish ..... *F. morgani*, n. sp.
9. Mesonotum extensively dark or with four almost complete dark vittae 10
   Mesonotum without dark markings or at most with a few faint ones past the suture 15
10. Mesonotum extensively dark, the dark vittae being fused or almost fused and extending to the scutellum 11
    The dark vittae well separated, or if fused the area in front of the scutellum is yellowish 12
11. The mesonotal vittae completely fused ..... *F. scutellata* Mall.
    The vittae distinctly separated by very thin yellow streaks ..... *F. gurneyi* Mall.
12. No dark markings on pleurae or alae, or else they are small and faint 13
    Dark markings on pleurae extensive 14
13. Four complete dark vittae on the mesonotum, the lateral ones not split longitudinally past the suture and not extending on the alar callus ..... *F. pescotti*, n. sp.
    The four dark vittae somewhat interrupted before the suture, the lateral ones split past the suture so that there appear to be six vittae across the middle of the notum ..... *F. flavicornis* Mall.
14. Median vittae of mesonotum interrupted in their middle, area in front of scutellum and sides of the latter infuscated; mesopleurae almost completely dark; 8th abdominal tergite present in male and as big as the 9th .... *F. newmani*, n. sp.

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* *F. microcera*, whose type is the only known specimen, has the posterior cross-vein obsolete on one wing only; it is not placed in this section.

Median vittae complete and fused with the lateral ones; area in front of scutellum yellow; mesopleurae dark on their upper and lower margins; 8th abdominal segment apparently missing in the male ..... *F. lockharti*, n. sp.

15. Thorax entirely yellowish or orange without trace of darker vittae on the mesonotum past the suture or dark markings on the pleurae 16
Mesonotum with a few dark markings past the suture* 19

16. Orbital and ocellar bristles very small, distance between the two cross-veins shorter than the anterior cross-vein ..... *F. frenchi*, n. sp.
These bristles of normal length, distance between the two cross-veins sub-equal to the length of the posterior cross-vein 17

17. Only one orbital bristle ..... *F. microcera* Mall.
Two orbital bristles present 18

18. Femora rather incrassate, wing length 2·5 mm.; hypopygium as in fig. 13 ..... *F. biseta* Mall.
Femora normal, wing length 2 mm.; hypopygium as in fig. 14 .... *F. nicholsoni*, n. sp.

19. Wing-length 2·5 mm. in male, 3 mm. in female, dorsum of abdomen nearly completely black; 6th abdominal segment mostly black in female; hypopygium as in fig. 15 ..... *F. curriei*, n. sp.
Wing-length 2·2 mm., dorsum of abdomen mostly yellow, base only of tergite brown; 6th abdominal segment mostly yellow in female; hypopygium as in fig. 16 ..... *F. tillyardi*, n. sp.

1. Fergusonina carteri, n. sp.

♂. *Head* lemon-yellow, ocellar triangle brown, frons very slightly infuscated anteriorly. Base of antennae deep black, 3rd segment orange, arista black, rather thick and long, sub-nude. Vibrissae and all the hairs of the face and frons black. Two supra-orbitals somewhat longer than the ocellars; sometimes a very small bristle between them pointing outwards. Upper part of occiput behind each eye brownish. *Thorax*: Mesonotum orange-yellow, somewhat shining, slightly grey-pruinose when seen from in front, with four wide blackish vittae, the lateral ones split longitudinally behind, the median ones reaching posteriorly to the last third of notum. Scutellum lemon-yellow; pleurae yellow with a well-marked longitudinal black streak; hypopleurae with a small and slight infuscation; post-notum blackish. Three pairs of dorso-ventral bristles and only one pair of prescutellar acrosticals. *Legs* completely yellow, all the hairs and bristles entirely black. *Wing*: Costa almost reaching tip of R_{4+5}, but devoid of setulae soon after tip of R_{2+3}; the two branches of Rs parallel; the distance between the two cross-veins equal to the length of the posterior cross-vein. *Abdomen* dull black dorsally except at base and on posterior half of 5th segment; 4th segment very narrowly margined with yellow; hypopygium yellow. Flap of the 9th tergite not divided from it; paraphalli with four teeth, one large apical one and three smaller lateral ones and without any sensory pits or pores (fig. 1B). Wing-length 3 mm.

♀. Completely similar to male; hind margin of 5th abdominal segment broadly yellow, the 6th completely dull yellow, the 7th shining black; the chaetotaxy as in fig. 1C. Type, allotype and numerous paratypes bred from leaf galls of *E. Stuartiana* in Canberra in July, 1934.

A number of specimens bred from galls of *E. amygdalina* from Emerald (Vic.) by Mr. C. French on 11th October, 1906, appear to belong to this species; the genitalia of both sexes correspond well, but the second segment of the antennae is sometimes only slightly infuscated and not deep black. The same species has been obtained from an undetermined species of *Eucalyptus* in Adelaide by Mr. J. W. Evans.

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* The alternative should always be tried, as these markings may be absent in less mature specimens.

2. Fergusonina eucalypti Mall.

Proc. Linn. Soc. N.S.W., lvii, 1932, p. 214.

♂. *Head* yellow, ocellar triangle with black spots on the inside of each ocellus; 3rd antennal segment black, the arista entirely black, thin, not incrassate at base, distinctly pubescent. The orbital bristles are very small, scarcely distinguishable from the other hairs of the vertex; they are, however, as long as the ocellars and the inner verticals. Vibrissae very small, entirely black, all the hairs of cheeks, face and frons, black; three rows of hairs on the parafacials which are correspondingly wider than usual. *Thorax*: Mesonotum brightly shining rufous-orange, without dark vittae except on the anterior margin, just above the neck, where there is a trace of the fused median vittae. Pleurae without dark markings, postnotum brown. Only two distinct dorso-centrals; four

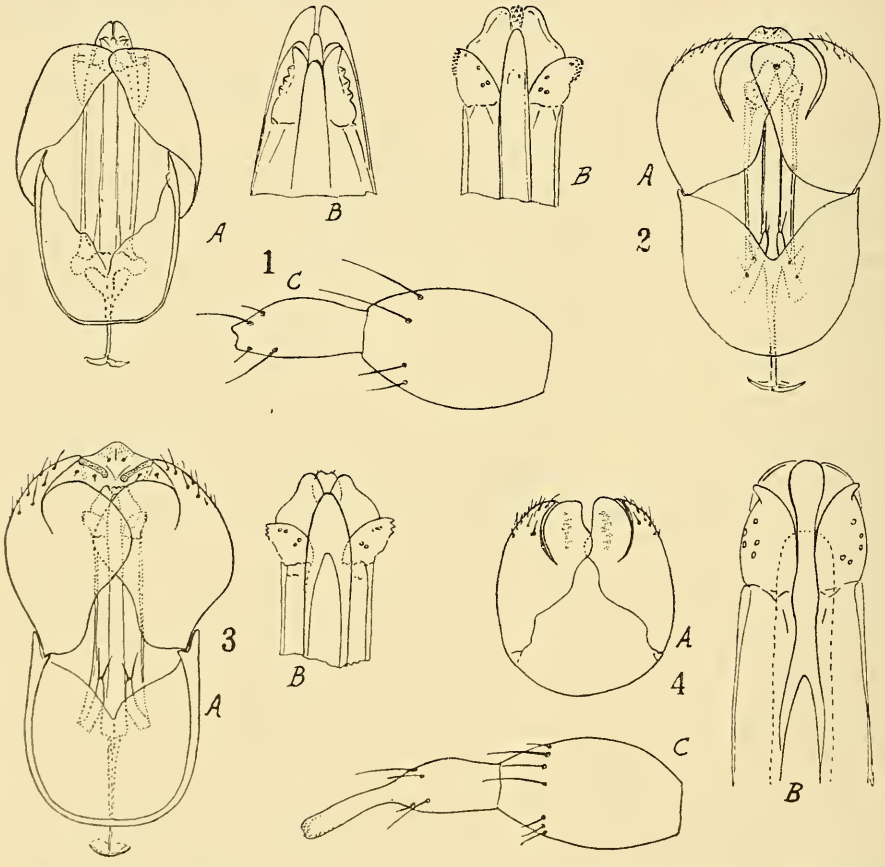

Fig. 1.—*Fergusonina carteri*, n. sp. *A*, male hypopygium from below; *B*, tip of intromittent organ; *C*, ovipositor.

Fig. 2.—*Fergusonina eucalypti* Mall. *A*, male hypopygium from below; *B*, tip of intromittent organ, the paraphalli exserted.

Fig. 3.—*Fergusonina atricornis* Mall. *A*, male hypopygium from below; *B*, tip of intromittent organ, the paraphalli exserted.

Fig. 4.—*Fergusonina evansi*, n. sp. *A*, ninth tergite of male from below; *B*, tip of intromittent organ; *C*, ovipositor with the 8th segment protruding.

other prescutellars, a short setulose hair behind the supra-alar. *Legs* yellow. All the hairs and bristles, even those of the coxae, black; the hind femora with the usual preapical antero-ventral bristles. *Wing*: Costa actually reaching the tip of R_5, but appearing to stop in between the two branches of the radial sector because its black spinulae do not reach any further; the branches of Rs slightly convergent in distal half; distance between the two cross-veins distinctly greater than the length of the posterior cross-vein. *Abdomen* with a large transverse black band in the middle, which spreads on the dorsum of the second to fourth tergites. Hypopygium yellow, its ventral flaps much developed and distinctly separated from the 9th tergite; the paraphalli are multidentate distally and have three sensory pores arranged as shown in figure 2B (these organs are represented there somewhat extruded, not in their normal position); between the two distal lobes of the hypophallus there is a number of characteristic sensory cones. This hypopygium is very similar to that of *atricornis* on account of the development of the flaps; the distal strongly sclerotized pieces shown in figure 3A are also present here, but are not figured as they are hidden by the flaps on account of the position of the whole organ in the preparation. Wing-length 3 mm.

♀. Three orbitals very small and near each other; there is no trace of reddish vittae on the mesonotum. The abdomen is brown on the dorsum of segments II to IV and base of V, the sixth slightly infuscated at the base dorsally, the seventh rather dull black. The vestiture of ovipositor is unusual; on segment VI there are 6 submarginal dorsal bristles, the outside ones being larger, and 4 to 5 submarginal dorsal; besides these there are, on each side before the submarginal bristles, two groups of small setulose hairs; one dorso-lateral, of 4 to 5, and one ventro-lateral, of 5 to 6 hairs. On segment VII, besides the usual long apical bristles, there are some fairly numerous smaller bristles on the bulbous part of the segment, about 20 above and 10 below.

This species was obtained from bud galls of *E. maculata* at Bodalla, N.S.W., in October, and at Bateman's Bay, also in October, by W. L. Morgan. I have seen the holotype male, the allotype, and another female paratype; there is no distinct trace of reddish vittae on the mesonotum, as stated by Malloch; what may appear to be such are the muscular bundles visible through the rather transparent integument of the notum.

3. Fergusonina atricornis Mall.

Proc. Linn. Soc. N.S.W., 1, 1925, pp. 91, 92, fig. 7.

♂. *Head* yellow, ocellar triangle shining black; base of antennae yellow, 3rd segment deep black, arista entirely brown. The chaetotaxy of the head is remarkable because of the small size of all the bristles except the outer verticals; however, all the usual bristles, as indicated in the generic diagnosis, are present, although difficult to make out. The type shows three orbitals, the median one being somewhat larger than the others and about equal to the inner verticals; the ocellars are a little longer. Only one row of setulae on the lower part of the parafacials which are narrow at that spot. All setulae of face and frons black. Vibrissae entirely black. *Thorax* yellow, mesonotum orange, with four very indistinct rufous vittae, visible only in certain positions; the median ones are brown on a small space right above the neck, the lateral ones brownish past the suture; they are divided longitudinally so as to present each the appearance of two narrow dark streaks, the internal one being placed just outside the dorso-central row of bristles. No dark markings on the pleurae; postnotum blackish; three dorso-centrals present, prescutellar acrosticals not distinct. *Legs*: Hind

femora with the usual bristles anteriorly and sub-apically (not posteriorly as given by Malloch). *Wing*: The two branches of the radial sector somewhat convergent (loc. cit., fig. 7), the distance between the two cross-veins equal to the length of the posterior one. *Abdomen* fuscous above, basal segment pale on the middle and on the sides. *Hypopygium* (fig. 3) remarkable by the development of the ventral flaps of the 9th tergite and the presence of the sclerotized rods near the apex of this tergite. The paraphalli (shown somewhat extruded in figure 3B) are characterized by the three distal triangular teeth and the four sensillae arranged in groups of two. Wing-length 2·2 mm.

The type, from Sydney (20th October, 1924), in the collection of the Health Department, Sydney, is so far the only specimen known.

The above description differs somewhat from that given by Malloch, especially in the coloration of the mesonotum, which he describes as having six vittae; the splitting of the two lateral vittae into two dark streaks, as I have observed in other species, may be purely an individual character; moreover, the anterior part of the lateral vittae does not show any signs of longitudinal division. The position of the strong setulae of the hind femora is decidedly anterior and not posterior; Malloch has been deceived here by the position of the median legs which extend towards the back over the hind one; on the mid-femora the setulae are as stated by him.

This species was probably collected with the net by the late E. W. Ferguson; the type of gall it makes is, therefore, not known.

4. Fergusonina evansi, n. sp.

♂. *Head* yellow, ocellar triangle shining black, arista thin, sub-naked, rufous on basal third, then brown; vibrissae and all hairs of face and frons black; two orbital bristles present, the posterior ones slightly longer. *Thorax* yellow, mesonotum rufous with small brownish markings just above the neck and six small dark spots on the posterior half; the median ones are on the middle of the disc, the next ones further back on the outside of the row of dorso-central bristles, and the outer ones on the sub-alar callus; these spots are the dark pigmented posterior ends of the vittae which are completely coloured in darker species. These markings may be completely or partly absent in paler specimens. Scutellum and pleurae completely yellow, postnotum brown. Usually three pairs of dorso-centrals and two pairs of prescutellars, the median ones larger. *Legs* entirely yellow, all their bristles completely black, including the long ones on the posterior femora. *Wing*: Costa stopping a little beyond the tip of R_{2+3}; wing apex rather pointed at the tip of R_{4+5}; the two branches of Rs sub-parallel; posterior cross-vein missing altogether or at most represented by a very faint trace of a spur on M_1. *Abdomen* dull brown on the dorsum except at base and tip; no pale margins on tergites 2, 3 and 4, the fifth with a very wide yellow margin. Hypopygium yellow, its latero-ventral flaps well separated from the capsule of the 9th tergite and with a group of 8 to 10 setulae on their inner side away from their margin. Aedeagus as in figure 4B, the paraphalli provided with five sensory pits and with only one apical tooth, no lateral ones. Wing-length 3 mm.

♀. As male, but the mesonotum not marked with brown in the five specimens examined, except right above the neck; the 5th abdominal segment brown at base only and the 6th with a small dorsal brownish patch; the 7th completely black. On segment VI there are 8 dorsal submarginal bristles, the median pair being small, and 4 or 5 ventral bristles. Segment VII with 2 ventral and 2 dorsal pairs. Wing-length 2·7 mm.

Type, allotype and paratypes bred from leaf galls of *E. meliodora* collected at Canberra; emerged in October, 1934.

5. Fergusonina davidsoni, n. sp.

♂. *Head* yellow, frons rufous, ocellar triangle brown; all the hairs of face black, vibrissae rufous at base. Antennae yellow, arista orange-yellow on basal third which is incrassate, the rest brown, not very distinctly pubescent. All the bristles of the vertex, except the outer verticals, of about the same length; in front of the orbitals are 2 to 3 hairs in the same row and of the same size as those of the frons but more rigid. *Thorax* yellow, mesonotum rufous with four dark vittae, the median ones interrupted so that they form two spots, one above the neck and one on the middle of the disc; the lateral vittae narrow and starting from the suture only; pleurae devoid of dark spots; sides of scutellum slightly infuscated, postnotum brown. Only two distinct dorso-centrals. *Legs* yellow. *Wing*: Costa reaching but very little over the first branch of Rs; posterior cross-vein absent on one wing, on the other represented by a small stump on M_1. *Abdomen* blackish on the dorsum, posterior margin of 5th segment and hypopygium yellow; lateral lobes of 9th tergite well divided from the tergite with a number of submarginal setulae on their inner face (fig. 5B); paraphalli much more elongate than usual, their apex in form of hook (fig. 5C).

♀. Similar to the male, vibrissae entirely black, the markings of the mesonotum almost obsolete, especially those on the disc; posterior cross-vein represented on both wings only by a very small stump on M_1. Sixth abdominal segment extensively infuscated at the base dorsally and much less ventrally, seven dorsal submarginal bristles (six is probably the normal number), the median and outside ones larger, and six ventral, the two median pairs smaller; seventh segment black with 3 pairs of dorsal and 2 pairs of ventral bristles (fig. 5D). Wing-length 2·5 mm.

Holotype and allotype from Adelaide, 16th October, 1931, J. Davidson, from *Eucalyptus* gall, species not mentioned.

This species is quite distinct from all others here described by the hypopygial structure of the male. The absence of the posterior cross-vein should not be considered as a very safe specific character since it may be absent or present according to the individual, as appears to be the case for the genotype.

6. Fergusonina scutellata Mall.

Proc. Linn. Soc. N.S.W., l, 1925, p. 92, fig. 9.

♂. *Head* yellow, ocellar triangle shining black, frons infuscated anteriorly, occiput extensively brown on each side. Antennae yellow, arista completely black, rather thick, distinctly pubescent. Vibrissae entirely black, as well as all the hairs on the face. All the bristles long, the posterior orbital somewhat longer than the inner vertical. *Thorax*: Mesonotum entirely black with slightly dusty surface, its sides, including the humeri, yellow, base of scutellum blackish, postnotum black, pleurae extensively fuscous or black with exception of upper part of mesopleurae, sternopleurae deep black. Three distinct dorso-central bristles, acrostical prescutellar present. *Legs* yellowish, a slight dark marking on the anterior side of the middle and hind femora. *Wing*: Costa prolonged a little over the tip of R_{2+3}; the two branches of the radial sector sub-parallel.* *Abdomen*: Dorsum

* These two veins are but slightly converging and not strongly as shown in Malloch's fig. 9; it is much more like his fig. 7 (*atricornis*). If the wing is not viewed perfectly flat these veins may appear more convergent than they actually are.

black with exception of the middle of the 1st segment, a narrow posterior margin on segment 4 and the posterior half of segment 5, which is yellowish. On the sides and ventrally the tergites are more widely margined with yellow, but their base is fuscous. Hypopygium black, 9th tergite rather elongate, its side flaps small, rounded (fig. 6A); aedeagus characterized by the very long and sharp upper tooth of the paraphalli (fig. 6B). Wing-length 2·5 mm.

Holotype: Sydney, N.S.W., 1st January, 1925, E. Ferguson in Coll. Health Department, Sydney. Gall and host unknown.

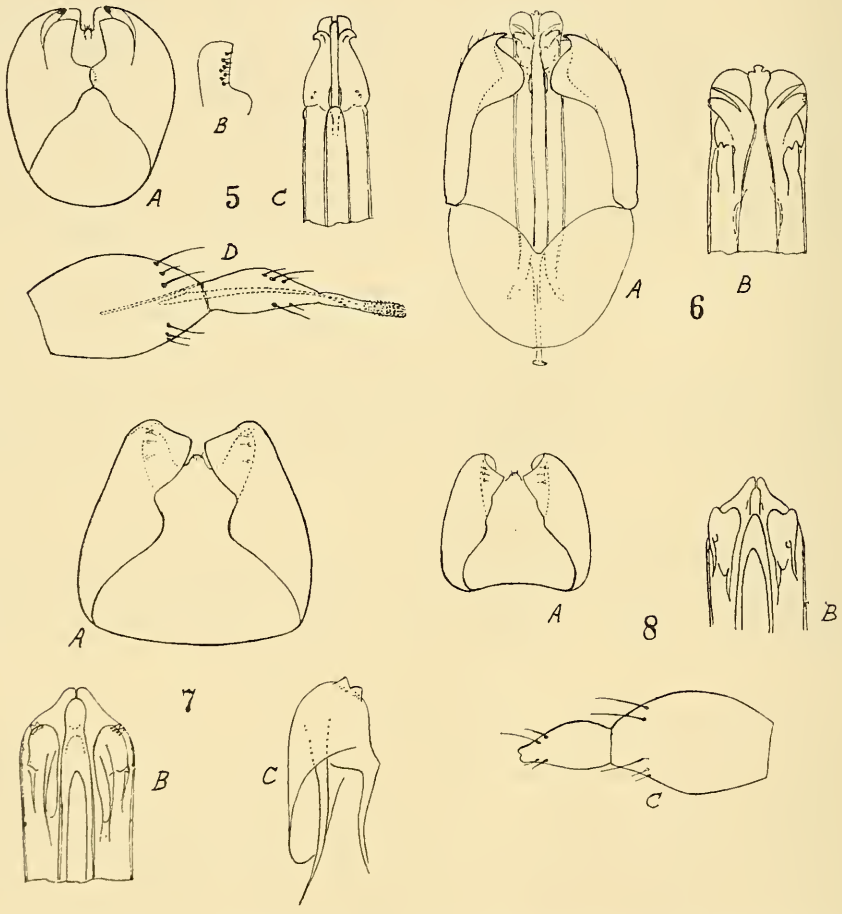

Fig. 5.—*Fergusonina davidsoni*, n. sp. *A*, ninth tergite of male from below; *B*, one ventro-lateral flap seen from inside; *C*, tip of intromittent organ; *D*, ovipositor with the 8th segment extruded.

Fig. 6.—*Fergusonina scutellata* Mall. *A*, male hypopygium from below; *B*, tip of intromittent organ.

Fig. 7.—*Fergusonina brimblecombi*, n. sp. *A*, ninth tergite of male from below; *B*, tip of intromittent organ; *C*, one of the paraphalli dissected out.

Fig. 8.—*Fergusonina morgani*, n. sp. *A*, ninth tergite of male from below; *B*, tip of intromittent organ; *C*, ovipositor.

7. Fergusonina brimblecombi, n. sp.

♂. *Head* yellow with a ferruginous orange crescent above the antennae; ocellar triangle black; antennae completely yellow, arista ferruginous at base on one-sixth of its length, rather thick and short, gradually tapering, not flagelliform, distinctly pubescent. Hairs of face and anterior part of frons pale, vibrissae somewhat infuscated. Two orbital bristles present, the anterior one half the size of the posterior one and sub-equal to the ocellars. *Thorax*: Mainly yellow; anterior half of the mesonotum orange and with one large brown spot split longitudinally just above the neck, a much smaller dark spot on each side just above the shoulder; these spots are the beginning of the four vittae which are completely black in some species; in this one the posterior part of these vittae is ferruginous. Mesopleurae with a longitudinal blackish streak, sternopleurae marked with brown, postnotum black rather shining, pteropleurae and hypopleurae sometimes also brownish. Chaetotaxy of the thorax as usual, the prescutellar acrosticals not conspicuous. *Legs* yellow with a small median black spot on the front and mid-tibiae, more distinct on their anterior side. *Wing* as in *F. pescotti*. *Abdomen*: General coloration yellow with a transverse dorsal brown band across the middle and an apical roundish dark spot; first tergite completely yellow, the 2nd to 4th brownish with narrow pale margin, the 5th narrowly brown at base and with a roundish apical brown spot; hypopygium yellow, ventro-lateral flaps not divided from the 9th tergite, of moderate size and angular at apex with about three sensory setae at base on internal side (fig. 7A), intromittent organ as in figure 7B, paraphalli with two sub-apical teeth inserted somewhat dorsally (fig. 7C). Wing-length 2 mm.

♀. As in male; the 4th abdominal segment with a rather broad posterior margin, the 5th nearly completely yellow but with a median dark vitta which does not extend to the margin; the 6th fuscous at base on both sides of dorsum, not in the middle; chaetotaxy of these two segments as in *F. morgani*.

Holotype, allotype and numerous paratypes bred from flower-bud galls of *E. melanophloia* in December, 1934, at Canberra, by Dr. Currie.

Two female specimens bred from similar galls on *E. crebra* may belong to this species; they correspond in every point, with the exception of the 6th abdominal segment, which is mostly black up to the submarginal bristles.

8. Fergusonina morgani, n. sp.

♂. *Head* yellow, area above lunula orange, ocellar triangle blackish, a dark patch on the occiput behind the upper corner of each eye. Antennae yellow, arista black except at the very base, rather thick and gradually diminishing in thickness, the distal part not flagelliform, distinctly pubescent. Hairs of face and anterior part of frons pale, including the vibrissae. Two supra-orbital bristles, the anterior ones smaller than the ocellars. Mesonotum extensively dark anteriorly, the four vittae being almost fused, the lateral ones are somewhat interrupted at the suture and are split longitudinally past the suture. The median vittae do not extend beyond the middle of the notum. There is a longitudinal dark streak on the mesopleurae; the ptero-, hypo- and sternopleurae are blackish like the postnotum; scutellum lemon-yellow. Three dorso-central bristles present and a pair of very small prescutellar acrosticals. *Legs* yellow with fairly extensive dark markings; femora blackish except at base and apex, the anterior one yellowish on internal face, tibiae with fairly wide median black ring, tarsi yellow. *Wing* as in *F. pescotti*, but the costa distinctly prolonged to the tip of R_{4+5}, although thinner from a little distance after tip of R_{2+3}. *Abdomen*: Tergites almost completely black except on

either side of the dorsum of the first one and on the curved lateral part of the second to fourth, where the margin is narrowly yellow and where there is a little yellow patch more ventrally; hind margin of fifth with two very small yellowish areas; 9th tergite blackish. Hypopygium with ventro-lateral flaps not divided from the 9th tergite, their apex angulous, 3 to 4 sensory setae on their internal face (fig. 8A), intromittent organ as in figure 8B, the paraphalli with a bilobed apex, no lateral teeth. Wing-length 2 mm.

♀. As in male; the lateral mesonotal dark vittae sometimes rather narrow after the suture, not split. Fifth abdominal tergite yellow with a black roundish median marking, 6th segment completely black with exception of posterior margin and provided with four long dorsal bristles and six ventral bristles, the 4 median ones being smaller; 7th segment completely black, with two ventral and two dorsal bristles (fig. 8C).

Holotype, allotype and several paratypes from flower-bud gall of *E. hemiphloia*. Collected in Victoria; emerged end of March, 1935.

9. Fergusonina gurneyi Mall.

Proc. Linn. Soc. N.S.W., lvii, 1932, p. 215.

♂. *Head* yellow, a fuscous anterior margin on the frons, ocellar triangle completely shining black; occiput fuscous on each side. Antennae yellow, arista completely black, distinctly pubescent. Vibrissae very small, entirely black; all the hairs on the face black. Orbitals of equal length, a little longer than ocellars and postverticals. *Thorax*: Mesonotum with four wide dull-black vittae, leaving only the side margins and very narrow streaks between them yellowish. Median vittae fused in front, somewhat paler brown past the disc, but distinctly reaching the scutellum; lateral vittae also somewhat paler on the alar callus; sides of scutellum brown; postnotum black. A sharp black streak on the mesopleurae (not on anepisternites), mesosternite mostly brown. Three distinct dorsocentrals, two pairs of prescutellars. *Legs* yellow, the longer bristles of femora entirely black. *Wing*: Costa reaching only a little way over tip of R_{2+3}; the two branches of Rs subparallel; distance between the cross-veins equal to length of posterior cross-vein. *Abdomen*: Base of tergites broadly black dorsally; distal half of the fifth yellow. Hypopygium yellow; the flaps of the 9th tergite distinctly separated from the latter distally, their apex acute (fig. 9A). The paraphalli broadly triangular without distinct lateral teeth, but with four sensory pits (fig. 9B).

♀. Similar to male; the abdominal tergites more widely margined with yellow; the 6th segment scarcely infuscated dorsally. Chaetotaxy of the ovipositor as follows: on 6th segment 6 dorsal submarginal bristles, the outer and median ones being larger; further, 6 ventral bristles, the two median pairs much smaller; on 7th segment 2 dorsal pairs, the internal and more distal ones longer, 3 ventral pairs, the proximal pair smaller, the two other pairs at same level, the external ones longer. Wing-length 2 mm.

Holotype and allotype from *Eucalyptus maculata* bud gall, Bateman's Bay, N.S.W., 15th October, 1931 (W. L. Morgan).

All the pale parts of the body of these specimens are dirty yellow as mentioned by Malloch; this is due to their general condition; there is no doubt that the mature individuals are just as bright yellow as usual.

10. Fergusonina pescotti, n. sp.

♂. *Head* yellow, face and anterior part of frons orange, ocellar triangle brown; hairs of face and lower part of frons paler than elsewhere but not very

markedly, vibrissae black. Antennae yellow, arista orange on its thicker basal part, which is less than one-sixth of the dark, flagelliform and distinctly pubescent distal part. Two orbital bristles present, sometimes one, or even two, very small setae in between them. *Thorax*: Mesonotum yellowish-orange with four brown vittae, the median ones extending from the neck to the middle of disc. The lateral ones rather narrow posteriorly (not split as usual). Pleurae orange without brownish markings; postnotum brown. Three dorso-central bristles, the pre-

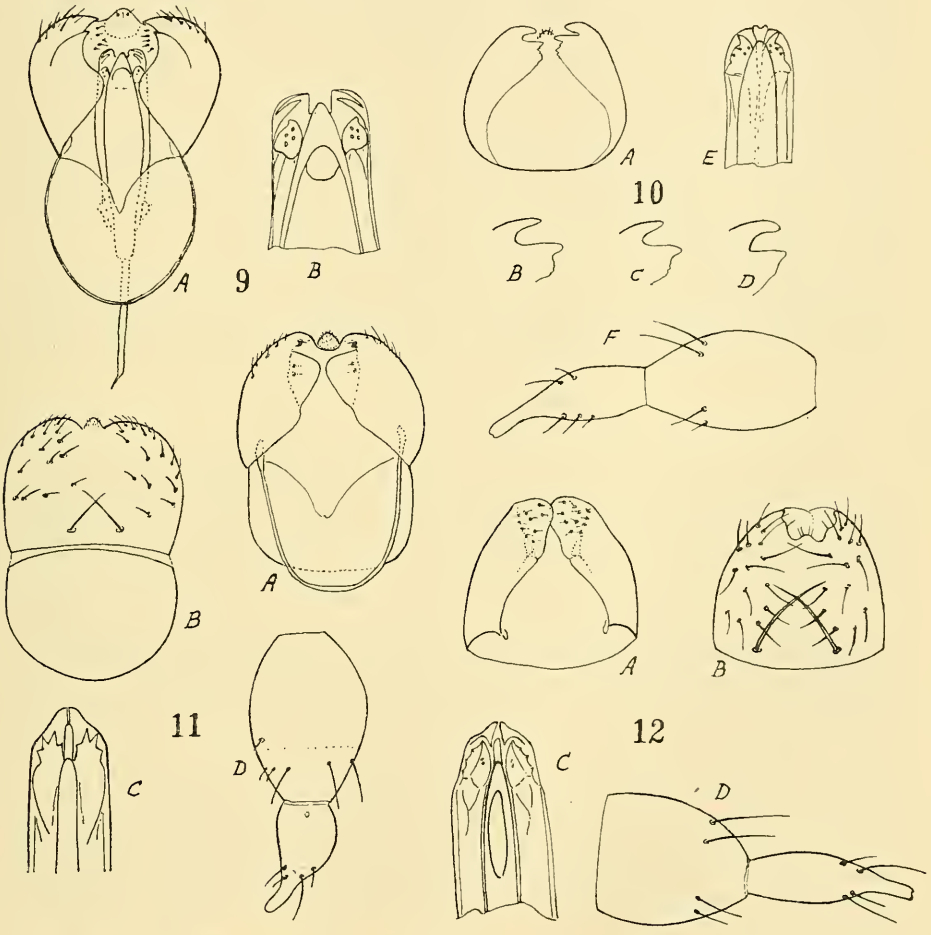

Fig. 9.—*Fergusonina gurneyi* Mall. *A*, male hypopygium from below; *B*, tip of intromittent organ.

Fig. 10.—*Fergusonina pescotti*, n. sp. *A*, ninth tergite of male from below; *B*, *C*, and *D*, various shapes of the ventro-lateral flaps; *E*, tip of intromittent organ; *F*, ovipositor.

Fig. 11.—*Fergusonina newmani*, n. sp. *A*, male hypopygium from below; *B*, 8th and 9th tergites from above; *C*, tip of intromittent organ; *D*, ovipositor.

Fig. 12.—*Fergusonina lockharti*, n. sp. *A*, 9th tergite from below; *B*, the same from above; *C*, tip of intromittent organ; *D*, ovipositor.

scutellar acrosticals fairly large. *Legs* yellow with black pubescence, bristles of posterior femora slightly pale at base. *Wing*: Costa reaching a little way over the tip of R_{2+3}; the two branches of Rs subparallel; the distance between the two cross-veins a little greater than the posterior cross-vein. *Abdomen* with the dorsum of segments 2 to 4 dark, the posterior margin of the 5th broadly orange, the 1st only partially blackish on the sides. Hypopygium: Latero-ventral flaps completely fused with the capsule of the 9th tergite, each with a strong apical more or less curved tooth and an irregularly dentate process underneath. The outline of this process is very variable, as can be seen from figures 10B, C and D. Tip of the intromittent organ as in figure 10E; paraphalli with one large apical tooth, but no lateral ones and provided with four sensory pits, the two outer ones with setae. Wing-length 2·3 mm.

♀. Similar to male, but the median dark vittae of the mesonotum interrupted in the middle then leaving only two round brown spots on the middle of the disc. Sixth abdominal segment infuscated on the dorsum only and with two pairs of dorsal and of ventral bristles; 7th segment black with two pairs of dorsal and three of ventral bristles. There is some variation in the number of these bristles; the proximal ventral pair of the 7th segment may be missing.

Holotype, allotype and 3 paratypes from Emerald, Victoria, 6th December, 1906, C. French; bred from leaf-gall of *E. amygdalina*. Also, 3 female paratypes from the same locality on 29th March, 1907, and very numerous specimens from Warrandyte (Victoria) bred from unidentified galls by G. F. Hill.

11. Fergusonina flavicornis Mall.

Proc. Linn. Soc. N.S.W., 1, 1925, p. 92.

♀. *Head* yellow, ocellar triangle brown, an infuscated area on each side of occiput; all the hairs of face and frons, including the vibrissae, dark. Antennae yellow, the arista orange on its incrassate basal quarter, the rest thin brownish, distinctly pubescent. Two orbital bristles, the anterior one smaller, sub-equal to the ocellars. *Thorax* yellow, ground-colour of the anterior part of the mesonotum reddish-orange and with brown vittae; both the lateral and the median vittae are paler on a small space just before the suture, the lateral ones are split longitudinally after the suture so that there appear to be six vittae towards the middle of the mesonotum; postnotum brown; a very faint brownish spot on the anepisternum and pteropleurae. Chaetotaxy of the thorax as usual, three pairs of dorso-central bristles. *Legs* completely yellow with all bristles and hairs black. *Wing* with costa reaching just a little over the tip of R_{2+3}, branches of Rs parallel, distance between the cross-veins equal to the posterior cross-vein. *Abdomen*: Dorsum of all the tergites dull blackish with exception of a very narrow hind margin; the 6th segment brownish dorsally with four dorsal and four ventral submarginal bristles, the median pair of the latter small; 7th segment black, rather elongate, with four dorsal and four ventral bristles. Wing-length 2 mm.

Holotype and unique specimen, Sydney, 30th November, 1924, E. Ferguson.

Malloch described this species as having six black vittae; this is true if one considers only the part immediately behind the suture. Further, he states that there is only one orbital bristle; the unique specimen is not in very good condition—there is on each side only one orbital bristle left, but on one side it is the anterior one and on the other the posterior one; the pores of the missing ones are plainly visible.

This species is not at all characteristic and, as the host species is not known, it may not be easily identified again. It comes very near to *F. pescotti*, and it is possible that this species will prove to be identical with *flavicornis*. However, as only one sex of the latter is known and as galls on *Eucalyptus amygdalina* have not yet been recorded but from Victoria, I think it is advisable for the present to consider both forms as distinct species.

12. Fergusonina newmani, n. sp.

♂. *Head* yellow, ocellar triangle fuscous with a blacker ring round each ocellus. Antennae yellow, arista rather short, its base rufous; vibrissae and all the hairs of the face black. Two upper orbitals not much longer than the ocellars. *Thorax*: Mesonotum rufous with four brown vittae, the median pair extending to the middle and markedly paler midway between the anterior border and the disc where they appear as two round, blackish spots; area in front of the scutellum fuscous, the latter has the same coloration and its sides have brownish markings at the base. Mesopleurae almost all brownish except in the middle; sterno-, ptero- and hypopleurae marked brownish; postnotum black; halteres yellow.* Three dorsocentral bristles; prescutellar acrosticals very small. *Legs*: Yellow, all the hairs and bristles black. *Wing*: Costa reaching the tip of R_{1+5} but its black setulae stopping well before that, the two branches of the Rs parallel, distance between the two cross-veins equal to the length of the posterior one. *Abdomen* almost completely black dorsally, the first segment with a few yellowish markings at the base. Hypopygium yellow, its lateral lobes or flaps well developed but not divided from the 9th tergite (fig. 11A); paraphalli with four teeth, the two apical ones elongate (fig. 11C); eighth tergite present, small, and forming with the ninth the hypopygial capsule (fig. 11B).

♀. Similar to male; sixth abdominal segment blackish from the base to somewhat below the level of the sub-marginal bristles, both dorsally and ventrally; seventh segment black, short and bulbous; chaetotaxy of these two segments is depicted in figure 11, which shows them in profile; there is in the allotype a single ventral bristle on the bulb which may not be usually found there. Wing-length 2 mm.

Type and allotype from King's Park, Perth, W.A., bred from gall on leaf-bud of *Eucalyptus gomphocephala* by G. A. Currie, 10th August, 1933. Also, one female paratype from the same locality, rather immature. The type and allotype are preserved in spirit, their genitalia on slides.

13. Fergusonina lockhartı, n. sp.

♂. *Head* yellow, ocellar triangle black; antennae yellow; arista relatively short, rufous on the basal quarter; vibrissae and all the hairs of the face black. The posterior orbital is distinctly longer; between the two orbitals there is a small coarse hair similar to those of the vertex but it points outwards. Occiput fuscous on the sides. *Thorax*: Mesonotum yellow with four wide black vittae. The median hair on the anterior half of the notum only; lateral vittae split longitudinally after the suture. Mesopleurae with extensive fuscous markings composed of a longitudional upper streak, some dark blotches underneath and a dark lower margin. Sternopleurae with a large squarish fuscous spot; pteropleurae and hypopleurae partly brownish. Post-notum black. Scutellum lemon-yellow. Four distinct dorsocentrals; two pairs of prescutellar acrosticals of equal length. *Legs*: Yellow, all the hairs and bristles black. *Wings*: Costa reaching the tip of R_{1+5} but its setulae

* This coloration is described from specimens in spirit.

stopping just a little over the tip of R_{2+3} so that, at first sight, the costa may seem to stop there. The two branches of Rs parallel; distance between the two cross-veins equal to or a little less than the length of posterior cross-vein. *Abdomen*: Whole dorsum black, only a small median area on first segment and a very narrow posterior margin on segments 4 and 5 yellowish; venter and hypopygium yellow. Lateral flaps not separated from the 9th tergite, rounded and provided with about nine sensory setae on the inside (fig. 12A). Intromittent organ shown in figure 12C; paraphalli with small widely-spaced teeth and one or two sensory pits. The structure of this hypopygium is exceedingly close to that of *tillyardi*, but in the latter the teeth of the paraphalli are relatively larger, more closely placed, and somewhat curved backwards; moreover, the dorsal setae of the 9th tergite are weaker and there is more than one setula on the distal edge of the tergite between the median dorsal tubercle and the lateral lobes. Wing-length 2·4 mm.

♀. Similar to male, the sternopleurae not so conspicuously marked with brown. Fifth abdominal segment with a wider yellow margin; the 6th segment blackish dorsally and ventrally at the base, nearly to the level of the submarginal bristles, four of these dorsally and four ventrally; seventh segment black, fairly elongated with two pairs of bristles above and two below. In one female the four black vittae are widely interrupted midway between the neck and suture, the mesonotum is there of a rufous colour.

Holotype, allotype and several paratypes of both sexes in alcohol from Mundaring, W.A., July, 1933, bred from leaf gall of *Eucalyptus rudis* by G. A. Currie.

14. Fergusonina frenchi, n. sp.

♀. *Head* ochraceous-orange, ocellar triangle brown, frons and vertex dull orange; all the hairs and bristles black, vibrissae small. Antennae yellowish, arista orange on incrassate part of base, remainder brown, thin, not distinctly pubescent. The two orbital bristles are very small yet quite distinct from the coarse hairs of the vertex, they are very close to each other (on one side there is a third smaller one posteriorly, in the type). Ocellar bristles of the same size as the orbitals and curved forward in the same way as the other hairs of the vertex, not strongly proclinate; a pair of small setulae right in the middle of the triangle; post-verticals erect and longer than the orbitals. *Thorax* shining, completely ochraceous-orange, no trace of vittae on notum, the postnotum brown; two large dorso-central bristles and two small ones, prescutellar acrostichals quite conspicuous, a further bristle of same size between these and the dorso-centrals. *Wing*: The two branches of the sector very slightly convergent; the costa ending at the tip of R_5 and bristly up to that point; the distance between the two cross-veins shorter than the length of the anterior cross-vein. *Abdomen*: Dorsum dull black, the posterior corners and hind margin of fifth segment narrowly yellow; the sixth segment dull brownish-black above and below, with six dorsal bristles and four ventral ones, the median pair smaller; seventh segment shining black, with five dorsal pairs of bristles, the two proximal ones small and one of them missing on one side, two ventral pairs. Wing-length 3 mm.

Holotype and unique specimen bred from small leaf galls on *E. amygdalina* from Emerald, Victoria, in October, 1906, by Mr. C. French. This species is similar in size and general coloration to *F. eucalypti* Mall., but it differs from it, at first sight, by completely yellow antennae and the entirely dark sixth abdominal segment, and further by the seventh with a limited number of bristles (four pairs); the orbital bristles are longer, although more reduced than in the majority of species.

15. Fergusonina microcera Mall.

Proc. Linn. Soc. N.S.W., xlix, 1924, p. 338; l, 1925, p. 91, fig. 6.

♀. *Head* yellow, a narrow black ring round each ocellus, the rest of the ocellar triangle yellow; antennae yellow; arista slightly rufous at base and distinctly pubescent. One large orbital only, behind which there is a small coarse hair directed outwards instead of forwards like all the other hairs of the vertex, it is also a little thicker than these and may represent the posterior orbital bristle. Vibrissae ochraceous at base, hair of face with a rufous tinge. *Thorax* completely rufous-yellow, contrasting with the bright yellow of the head, the postnotum somewhat infuscated. A row of five dorso-central bristles, the two anterior ones very small but yet distinct from the coarse hairs of mesonotum; prescutellar acrosticals longer than usual, somewhat more than half as long as the largest dorso-central. *Legs* yellow, the longer bristles of the femora rufous at base, hind femora not more incrassate than in other species. *Wing*: Costa extending only a little way over R_{2+3}, and the two branches of the radial sector distinctly divergent. Posterior cross-vein obsolete on one wing, nearly complete on the other; distance between the two cross-veins equal to length of the posterior one. *Abdomen*: Dorsum of the first five abdominal tergites fuscous; posterior border of the fifth and the sixth completely dull orange; the seventh glossy-black, except on basal half on the sides where it is luteous. Sixth segment with six dorsal submarginal bristles, the two outside ones being larger than the median ones; there are also numerous small bristles on the dorsal and ventral surfaces of these segments. The seventh segment carries many small bristles on all its surface proximal to the pairs of long subapical bristles. Wing-length 2 mm.

Holotype: North Harbour, Sydney, 30th March, 1923, E. Ferguson. In coll. N.S.W. Dept. of Health, Sydney.

I have not seen the male which was described by Malloch (loc. cit., p. 92), who may have retained this specimen. This male was collected by Dr. Ferguson at Sydney on 2nd October, 1924. As it was not bred from a gall with the female, it is somewhat doubtful, in view of the numerous species of this genus, whether it belongs to the same species as the female redescribed above. The only characters which may allow their being linked together are those of coloration: all yellow, the ocelli ringed with black. The hypopygium of this specimen, as described by Malloch, is quite different from that of the other members of the genus since "its forceps are long, slender, heavily chitinized and directed forward below the venter" (1921).

16. Fergusonina biseta Mall.

Proc. Linn. Soc. N.S.W., lvii, 1932, p. 215.

♂. *Head* yellow, the ocellar triangle not actually brown but the ocelli surrounded by brown. Antennae yellow, arista yellow on its basal third, distinctly pubescent, not at all distinctly incrassate at the base as is usually the case, thin on its whole length. Orbital, ocellar and post-vertical bristles rather small; smaller than the inner verticals. Vibrissae completely yellow, hairs of the face black, except those on the cheeks. *Thorax* rufous-yellow, mesonotum with a small vague fuscous marking just behind the humerus, postnotum yellowish. Three dorso-central and two pairs of prescutellar bristles, the median pair longer. Hairs on mesopleurae numerous, covering almost all its surface; bristles and hairs of sternopleurae all yellow. *Legs* with femora rather incrassate, all the longer bristles on front and hind femora extensively yellow at the base. *Wing*: All the veins yellow; costa reaching the middle of the distance between the two branches

of Rs, these two veins slightly divergent, the distance between the cross-veins equal to the posterior one. *Abdomen* entirely yellow; hypopygium (fig. 13) remarkable for the strong distal tooth on each side of the ninth tergite, lateral flaps with concave inner border; aedeagus with very small paraphalli which are provided with sensory setae. These and the penis are probably not so withdrawn basally as represented in figure 13 of the holotype and unique specimen. Wing-length 2·5 mm.

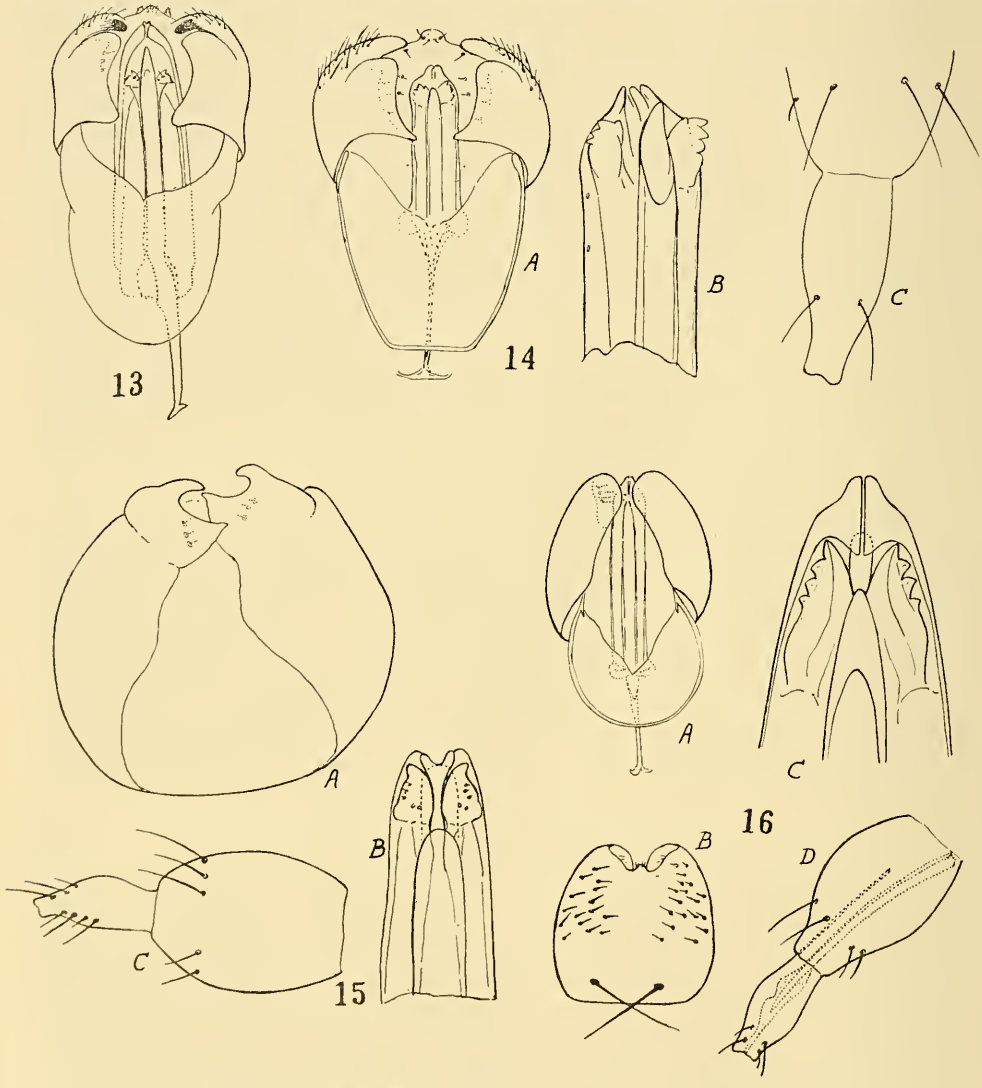

Fig. 13.—*Fergusonina bisecta* Mall. Male hypopygium from below.

Fig. 14.—*Fergusonina nicholsoni*, n. sp. *A*, male hypopygium from below; *B*, tip of intromittent organ, ¾ view; *C*, ovipositor.

Fig. 15.—*Fergusonina currici*, n. sp. *A*, ninth tergite from below, somewhat tilted back; *B*, tip of intromittent organ; *C*, ovipositor.

Fig. 16.—*Fergusonina tillyardi*, n. sp. *A*, male hypopygium from below; *B*, ninth tergite from above; *C*, tip of intromittent organ; *D*, ovipositor.

Holotype: Bodalla, N.S.W., October, 1929, bred from flower galls of *E. maculata*. In Coll. Department of Agriculture, N.S.W., Sydney. This specimen is rather teneral; when fully mature this species may have a more definite dark pattern on the mesonotum.

17. Fergusoninа nicholsoni, n. sp.

♂. *Head* yellow, ocellar triangle orange, with a trace of brown in close proximity to the ocelli. Antennae yellow, basal third of arista orange, the rest infuscated, not flagelliform, distinctly pubescent; hairs of face and anterior part of frons paler, the vibrissae pale at base. The two upper orbital bristles are sub-equal. *Thorax* dull ochraceous-orange, mesonotum with a very small dark spot just above the neck, postnotum very faintly brownish. Only two dorso-central bristles; the prescutellar acrosticals not distinct. *Legs* yellow, all hairs and bristles black. *Wing* as in *F. pescotti*. *Abdomen*: Dorsum of first four tergites very slightly infuscated at base; the fifth with a small faint brownish median basal area. Hypopygium yellow, its latero-ventral flaps large, distinctly divided from the ninth tergite with an acute basal corner and three internal sensory setae (fig. 14A), intromittent organ as in figure 14B, which shows a three-quarter view of it; paraphalli with three lateral teeth and a very blunt apical one, no pores or sensory setae on them. Wing-length 2 mm.

♀. As in male, sixth abdominal segment completely pale, with four dorsal and four ventral submarginal bristles, the median pair of the latter smaller; seventh segment black, with only two pairs of bristles.

Holotype, allotype and a number of paratypes bred from flower-bud galls of *E. macrorrhyncha* by Dr. G. A. Currie, in December, 1932, at Canberra.

18. Fergusoninа currieі, n. sp.

♂. *Head* yellow, ocellar triangle brown. Antennae completely yellow; basal fourth of arista yellowish, the rest infuscated, very thin and distinctly pubescent (at × 24). Vibrissae and hairs of face and of part of the frons pale. Two orbital bristles present, the anterior ones noticeably shorter, sometimes a very small bristle between the two. *Thorax*: Mesonotum dull orange-yellow with anterior dark markings just above the neck and short lateral fuscous vittae past the suture and rather faint median, dark, almost circular markings in centre of the disc. These two pairs of markings are sometimes obsolete. Scutellum and pleurae yellow, postnotum brown. Three pairs of dorso-central bristles and one pair of prescutellar acrosticals. *Legs* completely yellow, the large bristles of posterior femora partly yellow. *Wing*: Costa reaching a little over the tip of R_{2+3}; branches of Rs sub-parallel, distance between the cross-veins a little longer than the posterior cross-vein. *Abdomen*: Dorsum of the first five segments dull, dark brown; this dark area interrupted by a yellow patch in the middle of segments one to three, fourth segment very narrowly margined with yellow, the fifth with a very wide margin. Hypopygium directed very much more downward and backward than usual, the whole of the aedeagus being bent almost at right angles in its middle; six flaps of ninth tergite well delimited from the capsule, and provided with a strong curved apical tooth (fig. 14A). Tip of intromittent organ as shown in figure 14B, the paraphalli with one blunt apical tooth, no lateral ones, and provided with five sensory pits, the three outer of these with setae. Wing-length 2·5 mm.

♀. Similar to male, dark markings of the mesonotum more often missing. Sixth abdominal segment dull brown except on posterior margin, the seventh

shining black; the sixth with three dorsal pairs of submarginal bristles and two ventral pairs; the seventh with three dorsal and four ventral pairs. Wing-length 3 mm.

Holotype, allotype and paratype bred from leaf-bud galls of *Eucalyptus macrorrhyncha* by G. A. Currie, 18th April, 1934, in Canberra.

19. Fergusonina tillyardi, n. sp.

♂. *Head* lemon-yellow, ocellar triangle brown; hairs of face and anterior part of frons yellow, but the vibrissae completely black. Antennae yellowish, arista yellowish at the very base only, not elongate, its basal third incrassate, its distal part not flagelliform, sub-naked. Two large supra-orbital bristles sub-equal to the inner-verticals. *Thorax* yellow, mesonotum orange-yellow with a black marking just above the neck; sometimes a slight brown vitta on the outside of the dorso-central bristles; in these darker specimens there is also a small round brownish spot on the middle of the disc and a faint streak on the mesopleurae; scutellum lemon-yellow, postnotum brown. The dorso-central bristles are long, especially the last ones, but the acrosticals are scarcely distinguishable from the other hairs of that region of the thorax. *Legs* yellow, all the hairs, including the bristles of the posterior femora, completely black. *Wing*: Venation as in *F. pescotti*. *Abdomen* yellow; base of dorsum of tergites two to five narrowly brownish, a dark area on each side of the first tergite; the band of the second tergite often interrupted in the middle. In the darker specimens the whole disc of the abdomen is blackish with very narrow, yellow margins to the tergites. Hypopygium yellow, its latero-ventral flaps not divided from the capsule of the ninth tergite, small and rounded and provided on the inside with three to four sensory setae (fig. 16A); tip of the intromittent organ as in figure 16C, paraphalli with one apical and three lateral teeth, no sensory pits. Wing-length 2 mm.

♀. Similar to male; darker specimens with lateral dark vittae on mesonotum and on mesopleurae are scarcer; these specimens have also the base of the dorsum of the sixth abdominal segment dark; usually this segment is completely yellow, it is provided with four large submarginal dorsal bristles and four smaller ventral ones. Wing-length 2·2 mm.

Holotype, allotype and numerous paratypes bred from flower-bud gall of *Eucalyptus Blakelyi* in Canberra by Dr. G. A. Currie, 19th December, 1933. Four specimens bred from galls of *E. camaldulensis* by Mr. J. W. Evans at Naracoorte, S.A., apparently belong to the same species; there are, however, no dark markings on the thorax, but the male genitalia correspond in every respect with those of the typical form.

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